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Studies on cytotoxicity induced by DES and SA in *Vicia faba* var. major

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Page](#)

Abstract: The effect of diethyl sulphate (DES) and sodium azide (SA) was studied on the meiotic behaviour of *Vicia faba* L. var. major in the M1 generation. Five concentrations of SA (0.01%, 0.02%, 0.03%, 0.04%, and 0.05%) were combined with DES (0.02%) to study the synergistic and antagonistic effects of these 2 mutagens. A dose-dependent increase in chromosomal aberrations was recorded in populations treated with both the mutagens individually and their combination doses. The main chromosomal aberrations were stickiness, precocious separations, univalents, multivalents, laggards, unequal separations of chromosomes, micronuclei, disturbed polarity, multinucleate condition, and cytomixis. The stickiness and stray bivalents at metaphase I/II, bridges with or without fragments at anaphase I/II, disturbed polarity, and cytomixis at telophase I/II were the dominant anomalies. The univalents, rod bivalents, and multivalents showed dose-dependent increases, whereas the ring bivalents and chiasma frequency per cell showed dose-dependent decreases both in single as well as in combined mutagenic treatments as compared to the control.

Key words: *Vicia faba*, chromosomal aberrations, DES, SA, cytotoxicity, chiasma frequency

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